

RF

Notice of Allowability	Application No.	Applicant(s)	
	10/001,785	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Craig A. Thompson	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to communication of 7/21/2003.
2. ☒ The allowed claim(s) is/are 1-103.
3. ☒ The drawings filed on 05 December 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____. |
| 3 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No. _____ | 7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

Craig A. Thompson
Primary Examiner
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EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

- In claim 7, specification page 56, line 4: "source in a range of is 1 to 40" has been replaced with - - source is in a range of 1 to 40 - -.

The amendment is considered to be a correction of a typographical error and not to affect the scope of the claim.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: prior art of record does not describe or suggest applicants' invention set forth in claim 1 (and dependent claims 3, 5, 6, 20, 21, 22, 23, 24, 25, 26, 27, and 35) a method for making a semiconductor device wherein an amorphous semiconductor film is formed on an insulating surface, a catalytic element is added to the amorphous semiconductor film, and the amorphous film is crystallized by a controlled light source to irradiate with a pulsed light to form a crystalline semiconductor film. Similarly, prior art of record does not describe or suggest the invention of claim 2 (and dependent claims 36-47) wherein

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the light emitting time of the light source is in a range of 1 to 60 seconds. Prior art of record does not describe or suggest the invention of claim 6 (and dependent claims 8-10, 15, 16, 52- 60 and further dependent claims 17, 11, 18, 49, 19, 48, 50 and 51) wherein an impurity element is added to the crystalline semiconductor film and the catalytic element is gettered by the irradiation with pulsed light, in the context of the recited process.

Prior art of record does not describe or suggest applicants' invention set forth in claim 7 (and dependent claims 61-82) wherein the catalytic element is gettered by irradiating with the light and the light emitting time of the light source is in the range of 1 to 40 seconds. Prior art of record does not describe or suggest the invention of claim 12 (and dependent claims 13-14, and 83-97) wherein the catalytic element is added to a first amorphous film, the film is heated to crystallize it, a second amorphous film is formed on the crystalline semiconductor film and impurity is added to the second amorphous film and the catalytic element is gettered to the second amorphous film by controlling a light source to irradiate with pulsed light, in the context of the recited processes.

Prior art of record does not describe or suggest applicants' invention set forth in claim 28 (and dependent claims 31-34 and 98) wherein an amorphous semiconductor film is formed on an insulating surface, a catalytic element is added to a surface of the of the amorphous film, the amorphous film is crystallized by controlling a light source to irradiate a pulsed light, an impurity is added to the crystalline film, and the catalytic element is gettered by controlling the light source to irradiate with pulsed light, in the

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context of the recited processes. Finally, prior art of record does not describe or suggest applicants' invention set forth in claim 29 (and dependent claims 30, and 99-103) wherein the catalytic element is gettered and gate formation steps are carried out, in the context of the recited processes.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Cited Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Funnai et al. (U.S. Patent No. 6,162,667) teaches a method for making TFTs wherein an amorphous film is formed and a catalyst is added uniformly and in very low concentration (abstract) and columns 3-4) Crowder et al. (IEEE 1998 article) teaches forming Silicon TFTs using excimer laser crystallization (page 306). Gadnoczi et al. (J. Applied Physics 1991 article) teaches crystallization of amorphous Si using aluminum and annealing in argon from 400 to 1000K (page 6394).

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Thompson whose telephone number is (703)305-4789. The examiner can normally be reached on Monday-Friday 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (703)308-4940. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.


Craig A. Thompson
Primary Examiner
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